

001P0301

I claim:

1. A fluid aspiration device comprising:

a syringe having an aspiration intake and a fluid chamber;

5 an aspiration valve positioned in an aspiration fluid passageway between said aspiration intake and said fluid chamber and having an open aspiration position and a closed disposal position, wherein said aspiration valve transitions from said closed disposal position to said open aspiration position in response to fluid pressure directed from said aspiration intake to said fluid chamber;

a disposal reservoir;

10 a disposal fluid passageway between said fluid chamber and said disposal reservoir; and

a disposal valve positioned in said disposal fluid passageway and having an open disposal position and a closed aspiration position, wherein said disposal valve transitions from said closed aspiration position to said open disposal position in response to fluid pressure directed from said fluid chamber to said disposal reservoir.

15 2. The fluid aspiration device of claim 1, wherein said aspiration valve and said disposal valve are mounted in a valve assembly included in said syringe in series between said aspiration intake and said fluid chamber.

20 3. The fluid aspiration device of claim 2, wherein said syringe, disposal reservoir, and disposal fluid passageway are in fluid isolation from the external environment of said fluid aspiration device.

4. The fluid aspiration device of claim 1 further comprising fluid-tight connections between said aspiration intake and said aspiration valve, said aspiration valve and said fluid chamber, and said disposal valve and said disposal reservoir.

25 5. The fluid aspiration device of claim 1, wherein said aspiration valve is biased in said closed disposal position.

6. The fluid aspiration device of claim 1, wherein said disposal valve is biased in said closed aspiration position.

30 7. The fluid aspiration device of claim 1, wherein said disposal fluid passageway comprises a flexible disposal tubing.

001P0301

8. A fluid aspiration device comprising:

a syringe having an aspiration intake and a fluid chamber;

an aspiration valve positioned in an aspiration fluid passageway between said aspiration intake and said fluid chamber and having an open aspiration position and a closed disposal position, wherein said aspiration valve transitions from said closed disposal position to said open aspiration position in response to fluid pressure directed from said aspiration intake to said fluid chamber;

a disposal reservoir;

a disposal fluid passageway between said fluid chamber and said disposal reservoir;

a disposal valve positioned in said disposal fluid passageway and having an open disposal position and a closed aspiration position, wherein said disposal valve transitions from said closed aspiration position to said open disposal position in response to fluid pressure directed from said fluid chamber to said disposal reservoir;

a sampling outlet;

a sampling fluid passageway between said disposal reservoir and said sampling outlet; and

a sampling valve positioned in said sampling fluid passageway and having an open sampling position and a closed non-sampling position, wherein said sampling valve prevents fluid communication between said disposal reservoir and said sampling outlet in said closed non-sampling position and enables fluid communication between said disposal reservoir and said sampling outlet in said open sampling position.

9. The fluid aspiration device of claim 8, wherein said aspiration valve and said disposal valve are mounted in a valve assembly included in said syringe in series between said aspiration intake and said fluid chamber.

10. The fluid aspiration device of claim 9, wherein said syringe, disposal reservoir, disposal fluid passageway, sampling outlet, and sampling fluid passageway are in fluid isolation from the external environment of said fluid aspiration device.

11. The fluid aspiration device of claim 8 further comprising fluid-tight connections between said aspiration intake and said aspiration valve, said aspiration

001P0301

valve and said fluid chamber, said disposal valve and said disposal reservoir, and said disposal reservoir and said sampling outlet.

12. The fluid aspiration device of claim 8, wherein said aspiration valve is biased in said closed disposal position.

5 13. The fluid aspiration device of claim 8, wherein said disposal valve is biased in said closed aspiration position.

10 14. The fluid aspiration device of claim 8 further comprising a junction fitting and a reservoir connector, wherein said disposal fluid passageway comprises a disposal line, said junction fitting and said reservoir connector in series and said sampling fluid passageway comprises a sampling line, said junction fitting and said reservoir connector in series.

15. A method for aspirating a fluid from a region of a body of a patient comprising:

a) providing a fluid aspiration device including,

15 a syringe having an aspiration intake, a fluid chamber with a variable volume, and an aspiration fluid passageway between said region of said body containing said fluid and said fluid chamber,

20 an aspiration valve positioned in said aspiration fluid passageway, wherein said aspiration valve has an open aspiration position and a closed disposal position and said aspiration valve is fluid pressure actuated,

a disposal reservoir,

a disposal fluid passageway between said fluid chamber and said disposal reservoir, and

25 a disposal valve positioned in said disposal fluid passageway, wherein said disposal valve has an open disposal position and a closed aspiration position and said disposal valve is fluid pressure actuated;

b) inserting said aspiration intake into said region of said body;

expanding said variable volume of said fluid chamber to create a suction in said fluid chamber;

30 c) drawing said fluid in an aspiration direction from said region of said body through

001P0301

said aspiration passageway in response to said suction;

d) transitioning said aspiration valve to said open aspiration position in response to fluid pressure in said aspiration direction;

5 e) drawing said fluid through said aspiration valve in said open aspiration position into said fluid chamber in response to said suction;

f) transitioning said aspiration valve to said closed disposal position;

g) contracting said variable volume of said fluid chamber to displace said fluid from said fluid chamber into said disposal passageway in a disposal direction;

10 h) transitioning said disposal valve to said open disposal position in response to fluid pressure in said disposal direction; and

i) displacing said fluid through said disposal valve in said open disposal position into said disposal reservoir in response to said contraction, wherein steps c) - i) comprise an operating cycle of said fluid aspiration device.

16. The method of claim 15, wherein said operating cycle further comprises;

15 j) transitioning said disposal valve to said closed aspiration position.

17. The method of claim 15 further comprising repeating said operating cycle one or more times.

18. The method of claim 17 further comprising removing said aspiration intake from said region of said body after completion of step i) in one of said operating cycles, maintaining said fluid aspiration device intact with said fluid retained therein, and disposing said intact fluid aspiration device including said fluid.

19. The method of claim 15, wherein said fluid aspiration device is maintained in fluid isolation from an external environment of said fluid aspiration device.

20. The method of claim 15, wherein said fluid aspiration device further includes,

a sampling outlet,

a sampling fluid passageway between said disposal reservoir and said sampling outlet, and

30 a sampling valve positioned in said sampling fluid passageway and having an open sampling position and a closed non-sampling position, wherein said sampling

001P0301

valve prevents fluid communication between said disposal reservoir and said sampling outlet in said closed non-sampling position and enables fluid communication between said disposal reservoir and said sampling outlet in said open sampling position; and

said method further comprises;

- 5        placing a sampling container in fluid communication with said sampling outlet;
- transitioning said sampling valve from said closed non-sampling position to said open sampling position; and
- conveying said fluid from said disposal reservoir to said sampling container.